WHAT WE CLAIM IS:

1. A variable-optical-characteristic optical element characterized by using at least two selected from the group consisting of electrostatic force, electromagnetic force, a piezoelectric effect, magnetostriction, a fluid pressure, an electric field, a magnetic field, an electromagnetic wave, a temperature change, and a photomechanical effect.

2. A variable mirror characterized by using at least two selected from the group consisting of electrostatic force, electromagnetic force, a piezoelectric effect, magnetostriction, a fluid pressure, an electric field, a magnetic field, an electromagnetic wave, a temperature change, and a photomechanical effect.

3. A variable-focus lens characterized by using at least two selected from the group consisting of electrostatic force, electromagnetic force, a piezoelectric effect, magnetostriction, a fluid pressure, an electric field, a magnetic field, an electromagnetic wave, a temperature change, and a photomechanical effect.

4. A variable-optical-characteristic optical element characterized by using at least two different driving methods.

5. A variable-optical-characteristic optical element characterized by having a member for stepping up a voltage.

6. A variable-optical-characteristic optical element according to claim 5, which is characterized by using electrostatic force or a piezoelectric effect.

7. A variable-optical-characteristic optical element characterized by using a magnetostrictive material.

8. A variable-optical-characteristic mirror characterized by using a magnetostrictive material.

9. A variable-optical-characteristic lens characterized by using a magnetostrictive material.

10. A variable-optical-characteristic optical element characterized by having a transparent member for protection.

11. A variable-optical-characteristic optical element characterized by having a transparent member for protection in the vicinity of a surface on at least one side of a variable mirror or a variable-focus lens.

12. A variable-optical-characteristic optical element characterized by using a photomechanical effect.

13. A variable-focus lens characterized by using a photomechanical effect.

14. A variable mirror characterized by using a photomechanical effect.

15. A variable-optical-characteristic optical element characterized by having at least two different kinds of light sources and using a photomechanical effect.

16. An optical apparatus characterized in that a space facing a variable-optical-characteristic optical element is closed with a transparent member and a mechanical member.

17. An optical apparatus characterized in that a space facing a variable-optical-characteristic optical

element is hermetically sealed with a transparent member and a mechanical member.

18. An optical apparatus according to claim 16, which is characterized by using an air-permeable mechanical member or transparent member.

19. An optical apparatus according to claim 16 or 17, which is characterized in that the variable-optical-characteristic optical element is a variable mirror.

20. An optical apparatus according to claim 18, which is characterized in that the variable-optical-characteristic optical element is a variable mirror.